

**REMARKS**

Claims 1, 2, 6, and 7 have been amended to address formal matters raised by the Examiner and have not been changed substantively. Specifically, claims 1, 2, 6, and 7 each have removed the “and/or” recitation and have substituted therefore “at least one of” language in compliance with 35 U.S.C. 112, second paragraph. Claim 1 has been amended for antecedent basis when referring to “said case base database”. Claims 1 and 6 have both been amended to eliminate “their”, and now more precisely reference the overall failure probabilities “computed for each component”. Since the amendments do not substantially present any new issues and either place the case in *prima facie* condition for allowance, or reduce the number of issues remaining for appeal by eliminating the rejection under 35 U.S.C. 112, second paragraph, entry of the amendment at this time is appropriate.

The application includes claims 1-10.

Based on the amendment, the sole issue raised by the Examiner is a rejection of claims 1-10 for anticipation by U.S. Patent Application No. 2004/0250166 to Dahlquist. This rejection is traversed. Moreover, the claims are also not obvious over Dahlquist.

Both claims 1 and 6 require the use of case-based reasoning and reliability analysis in an integrated fashion. Dahlquist wholly lacks the feature of application of case based reasoning and analysis of historical failure data and published data in an integrated fashion to composing a list of component recommendations ranked by their overall failure probabilities. Dahlquist’s system performs its calculation by a completely different method, thereby making the claimed invention both new and unobvious to those of skill in the art. In particular, Dahlquist’s use of case based reasoning is to “choose the most similar match of an estimated root cause,” [0056]

which is the known mode of usage of this technique. The focus of Dahlquist is to use extend case based reasoning such that a probability of failure can be calculated.

The Examiner has incorrectly identified element 31 as a database. Block 31, as stated in Dahlquist paragraph [0067] pertains to "...information signals may be processed by block 31..." Thus, Block 31 is a processing element and not a database. Block 24 of Dahlquist is described as a database in paragraphs [0070] and [0071]. The case base database of the subject invention clearly identifies each record as including: the identification of the machine or machine-process combination if the machine is capable of more than one process, and indication of failure of each component within the machine, and a description of the problem as seen by the maintenance technician as discussed in paragraphs [0028] – [0031]. Dahlquist, in sharp contrast to a case based system as required by the claims, simply describes the data in the database in paragraph [0061] as. "...simulated data and/or computed data. The data may also include distribution of continuous variables."

The Examiner has incorrectly equated the case base reasoning shown in Dahlquist Fig. 2 and Fig. 5, block 35 with the case base reasoning of the subject invention. The case base reasoning, as discussed previously is performed on data after it has been classified (Fig 2, blocks 27 and 26) (i.e., Dahlquist requires classification of information into characteristic states so as to reduce the amount of calculations required—see Dahlquist at [0036] and the abstract). However, the case base reasoning of Dahlquist is used only with the data that has been classified and not the entire collection of data available.

In sharp contrast, the claimed invention is concerned with components in equipment, and using case based reasoning and data analysis techniques to diagnose equipment failures (while Dahlquist's focus is on process failures). Claims 1 and 6, require for each component in the equipment, calculating failure probabilities based on historical data or published failure data. Performing diagnostics based on a

method comprising of case based reasoning and data analysis techniques at the component level, as contemplated by the present invention, is different from and not obvious to one of ordinary skill in the art based on Dahlquist.

Claims 1 and 6 and their dependent claims are new and unobvious over Dahlquist for the above reasons. In addition, with respect to claims 4 and 9, Dahlquist uses the word hierarchy to differentiate the levels within a plant. As stated by Dahlquist in paragraph [0082] – [0087], a set of approaches is used in a top down approach to identify the failed equipment within a large plant of equipment. This is different from the subject invention which is using a hierarchy to represent the components within their respective equipment. A hierarchy in terms of the subject invention is analyzing all the data necessary to obtain a solution starting at the lowest hierarchy level in which the component is associated, because this will pinpoint the failure at the most detailed level. The hierarchy is only exercised if insufficient data is found at this lowest level. Dahlquist always uses his hierarchy to identify the location of a process failure within a plant (i.e., process sections or stages [0082]).

As for claims 5 and 10, similarly as for claims 4 and 9, the subject invention is using a hierarchy to represent the components within their respective equipment. A hierarchy in terms of the subject invention is analyzing all the data necessary to obtain a solution starting at the lowest hierarchy level in which the component is associated. The data from the upper levels of the equipment hierarchy are only exercised if insufficient data is found at the lowest level. This is not the same concept of hierarchy as for Dahlquist. Dahlquist always uses his hierarchy to identify the location of a process failure within a plant (i.e., process sections or stages [0082]). In addition, Dahlquist uses the case base reasoning at the equipment level and Bayesian inference at the component level [0081, 0083]. Case base reasoning is not applied by Dahlquist at the component level and therefore, a hierarchy of data is not used to create the probability list as required by the subject invention.

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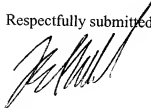
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In view of the foregoing, it is requested that the application be reconsidered, that claims 1 - 10 be allowed, and that the application be passed to issue.

Should the Examiner find the application to be other than in condition for allowance, the Examiner is requested to contact the undersigned at 703-787-9400 (fax: 703-787-7557; email: mike@wcc-ip.com) to discuss any other changes deemed necessary in a telephonic or personal interview.

If an extension of time is required for this response to be considered as being timely filed, a conditional petition is hereby made for such extension of time. Please charge any deficiencies in fees and credit any overpayment of fees to Deposit Account 50-0510 (IBM-Yorktown).

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'Michael E. Whitham', is written over a horizontal line.

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